METHOD OF PREDICTION OF IN-VIVO POLYMER PERFORMANCE BY EXTERNAL EXPERIMENTATION

Abstract

A method is disclosed of using external polymeric analytical techniques to predict in-vivo polymeric performance, more particularly, viscoelastic property characterization for performance modeling of bio-medical devices that incorporate a polymeric component and are load-bearing during service. Time-Temperature Superposition can be used to accelerate external testing of pertinent properties. Boltzmann's superposition provides a mathematical methodology for determining the time-dependent strain that develops in response to an imposed stress history. The modeling of the present invention provides an opportunity to describe and predict behavior of the device during in-vivo service, as well as it providing a basis for evaluating alternate "candidate" polymers for use in the construction of the device.